J. HOWARD ENGINEERING

8105 Edgewater Drive, #209

Oakland, CA 94621

Contrs. Lic. No.
503495

SUBMITTAL TRANSMITTAL

TO: **City of Oakland**
250 Frank H Ogawa Plaza, Ste 4314
Oakland, CA 94612

Attn: Wezlon Miles
Tel: (510) 238-5238
Fax: (510) 238-6633

Date: October 26, 2015

Job No.: OAK05 Submittal #: **6.0**

Project: SS Rehab of 17th, 21st, 27th St, Inyo St, & 25th Ave
Subject: HDPE Electro-Fusion Couplings

Gentlemen,

We are enclosing the following submittal information for review and approval in accordance with the contract documents. Please return two (2) approved/marked sets for our records.

No.	Copies	Ref Spec/Dwg	Description	Source
1	1	500-1.6.3	HDPE Electro-Fusion Couplings	IPEX

Notes:

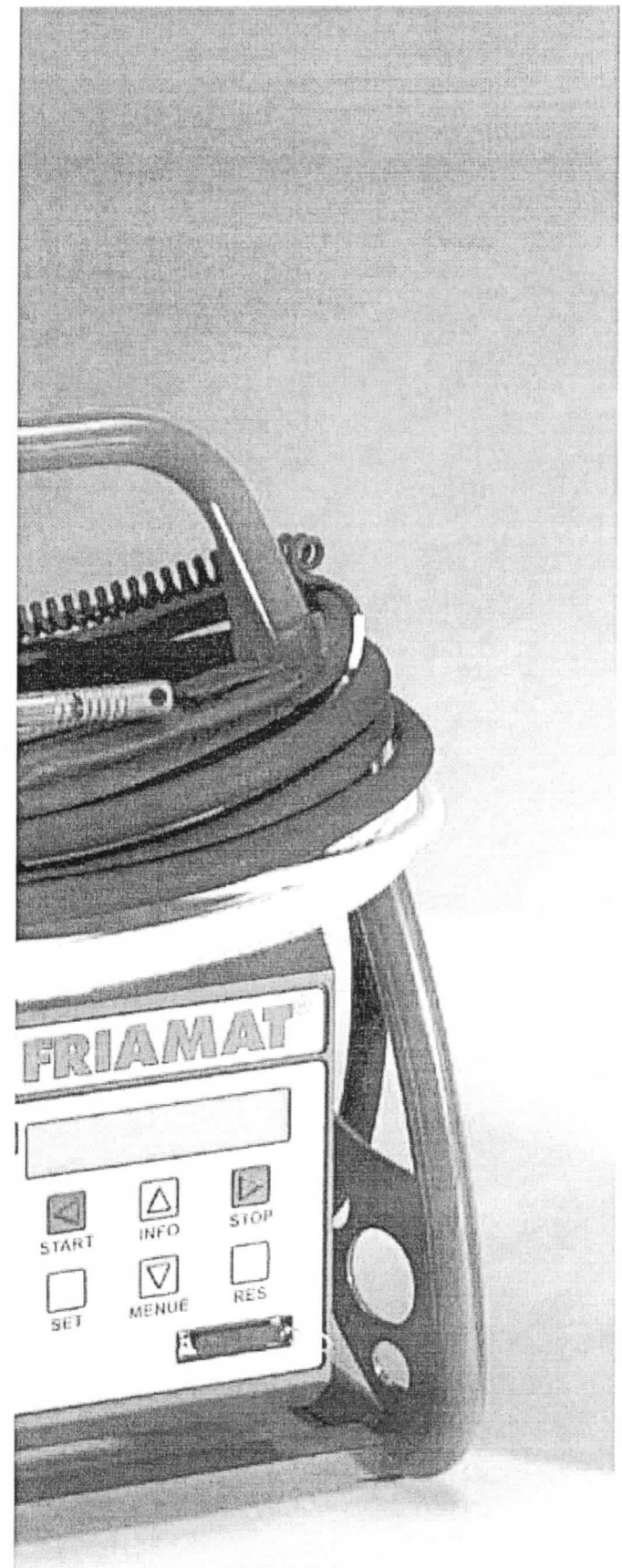
Review Action (check one):
[ ] 1 -No Exceptions Noted
[ ] 2 -Make Corections Noted
[ ] 3 -Revise & Resubmit
[ ] 4 -Not Acceptable -Resubmit

PLEASE DIRECT ANY QUESTIONS REGARDING THIS SUBMITTAL TO:
Ron H. Zelaya, P.E.
Phone (510) 303-9591
ronzelaya@sbcglobal.net

Cc:

J. HOWARD ENGINEERING

By: R. Zelaya



PE Electrofusion Systems for Gas & Water

Friatec electrofusion products are engineered smarter than traditional fusion systems. Manufactured in the USA, Friatec couplings feature a unique, exposed coil design that provides a seal stronger than any other electrofusion system on the market. This is achieved for two reasons:

- the heat, created by the electrical current passing through the exposed coil of the Friatec coupling, is transferred directly to the PE pipe, and
- the coil protrudes from the interior surface of the coupling. When the pipe is heated, the coil sinks into it creating a much stronger bond.

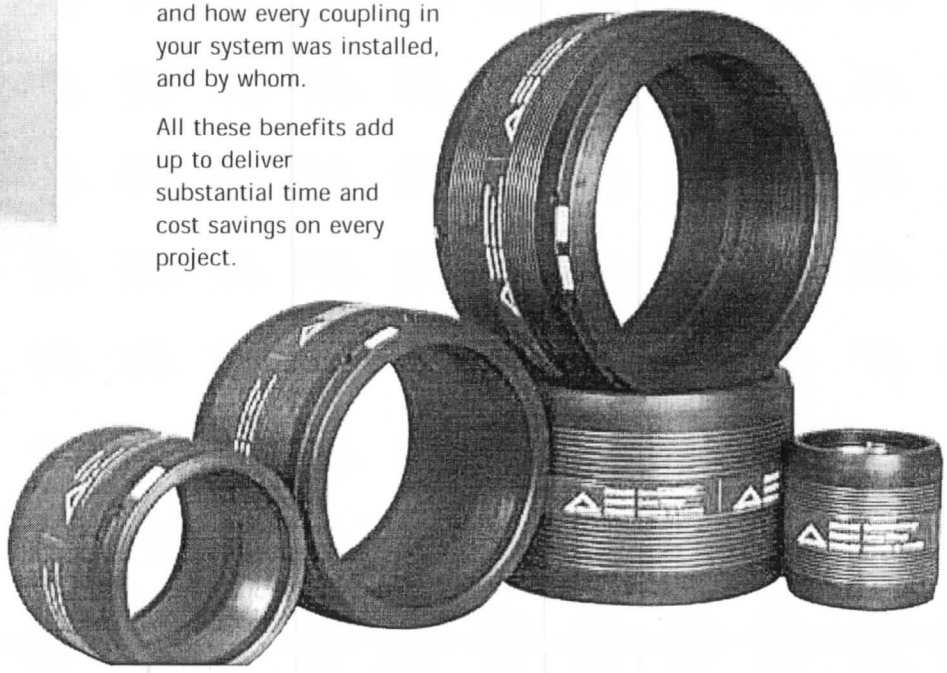
Unlike competing embedded coil technology fittings which require heating the entire coupling, Friatec's unique "exposed coil" melts the fitting and pipe surfaces directly, sinking into the pipe to form a leak-proof bond. Friatec electrofusion fittings are designed with extra wide fusion zones that provide greater contact area, further increasing the integrity of the bond between coupling and pipe.

As a result of this process, every joint will be fused precisely to specification, automatically, every time, minimizing the risk of human error. This unique fusion technology has earned Friatec couplings the highest pressure rating in the industry. What's more, because every joint is as strong as the pipe itself, the Friatec electrofusion system is ideal for directional drilling and other trenchless applications.

With the industry's most advanced barcode monitoring, recording and tracking technology, Friatec makes managing your infrastructure easier than ever before.

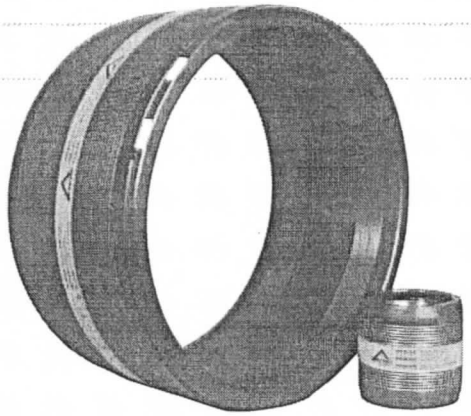
Imagine, no more hidden costs or surprises on future dig ups. Instead, you will know when, where and how every coupling in your system was installed, and by whom.

All these benefits add up to deliver substantial time and cost savings on every project.



IPEX

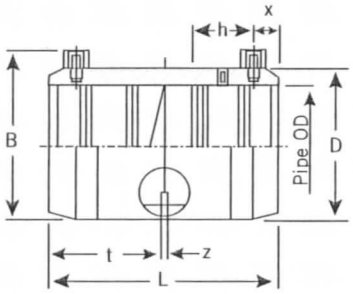
Safety Electrofusion Fittings < FM 200 psi >



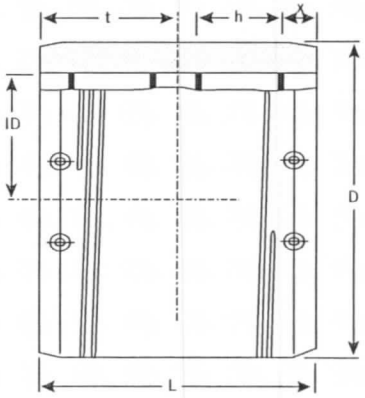
4" IPS through 20" IPS

Short Designation	MBI. . . OD
Field of Application	Connections of PE Pipes 2406 and 3408
Range of Application	Gas up to 100 psi and water up to 200 psi

For higher pressure ranges contact IPEX at ☎ 864-286-8800



4" - 6"



8" - 20"

Nominal Pipe (in) OD	SDR	ID min	ID max	D	B	L	t	z	h	x	Fusion Time/Sec @ 73°F	Cooling Time/Min */**/***
4" IPS	SDR 11	4.492	4.516	5.827	6.173	6.260	3.110	0.079	1.689	0.67	151	10/30/40
6" IPS	SDR 11	6.610	6.634	8.543	8.740	7.992	3.976	0.079	2.295	0.79	440	20/60/75

Nominal Pipe (in) OD IPS	SDR	ID min	ID max	D	L	t	h	x	Fusion Time/Sec @ 73°F	Cooling Time/Min */**/***
8" monofilar	SDR 11	8.626	8.665	11.029	9.448	4.724	2.953	1.063	540	20/60/75
8" bifilar	SDR 11	8.626	8.665	11.022	9.448	4.724	2.953	1.063	554 ea side	20/60/75
10"	SDR 11	10.748	10.787	13.975	11.811	5.275	3.149	1.063	500 ea side	30/75/100
12"	SDR 11	12.748	12.787	15.746	11.219	5.610	2.679	1.142	550 ea side	30/75/100
14"	SDR 11	13.976	14.016	17.716	11.811	5.905	3.500	1.260	580 ea side	30/75/100
16"	SDR 11	15.969	16.008	19.685	12.598	6.299	3.748	1.260	870/730 ea side	45/95/120
18"	SDR 11	17.969	18.008	22.047	13.386	6.693	3.346	1.260	870/870 ea side	45/95/120
20"	SDR 11	19.961	20.016	24.803	14.173	7.086	3.622	1.260	870/720 ea side	45/95/120

Friatec Safety Fittings can be fused to all PE pipes within melt index groups 003-050 and pipe SDR range 9.33 through 17.6.

* Pipe can be moved after indicated cooling time (handling)
** Pipe can be pressurized after indicated cooling time (pressure <90 psi)
*** Pipe can be pressurized after indicated cooling time (pressure >90 psi)

FRIATEC